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Modern radiation dosimetry is largely based on the Bragg-Gray principle which permits the measurement of the amount of energy absorbed by tissue from ionizing radiations. Although the analysis and interpretation of radiation experiments require that the radiation flux and its "dose" (absorption) be known in ergs/cm² and ergs/gram, respectively, the actual calibration measurements are usually made with ionization chambers rather than directly by a calorimetric method. This procedure has been customary since ionization measurements have been convenient and reproducible, whereas the direct calorimetric measurement has appeared difficult. The necessary conversion of the ionization measurement into absolute units is simplified with the assumption of the Bragg-Gray relation but is not always simple or certain. By this calorimetric method which Sloan Kettering Institute has developed it is now possible to quantitatively determine the relation between ionization and absorbed energy as a function of atomic number of absorber and energy of X ray to examine any limitations of the Bragg-Gray relation that might exist.

The scientists working on this project suggest that this calorimetric method of flux determination be adopted as the fundamental calibration of the output of the roentgen-ray generators, particularly for generators above 1 Mev.

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